

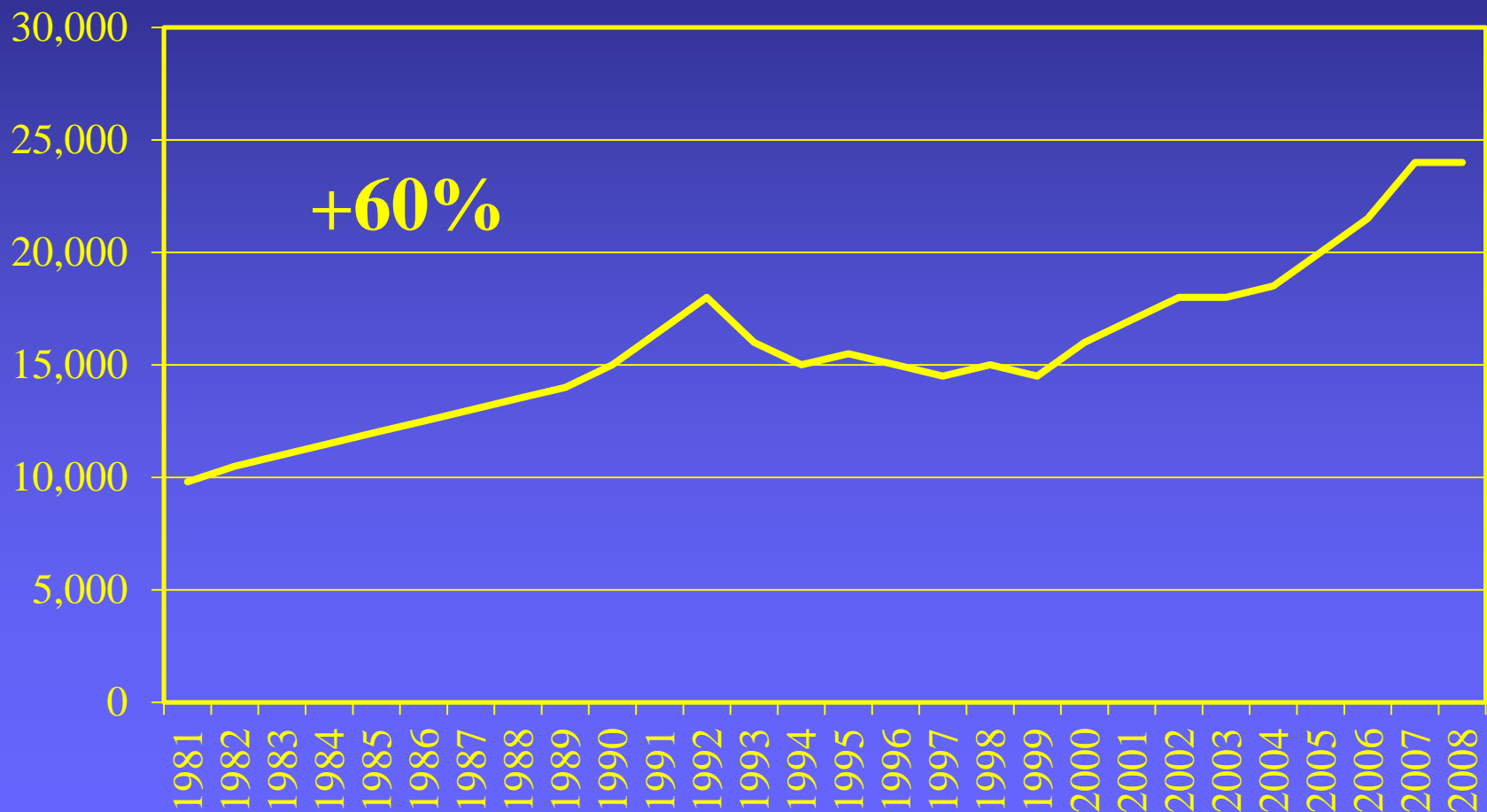


# UNGULATE STATUS

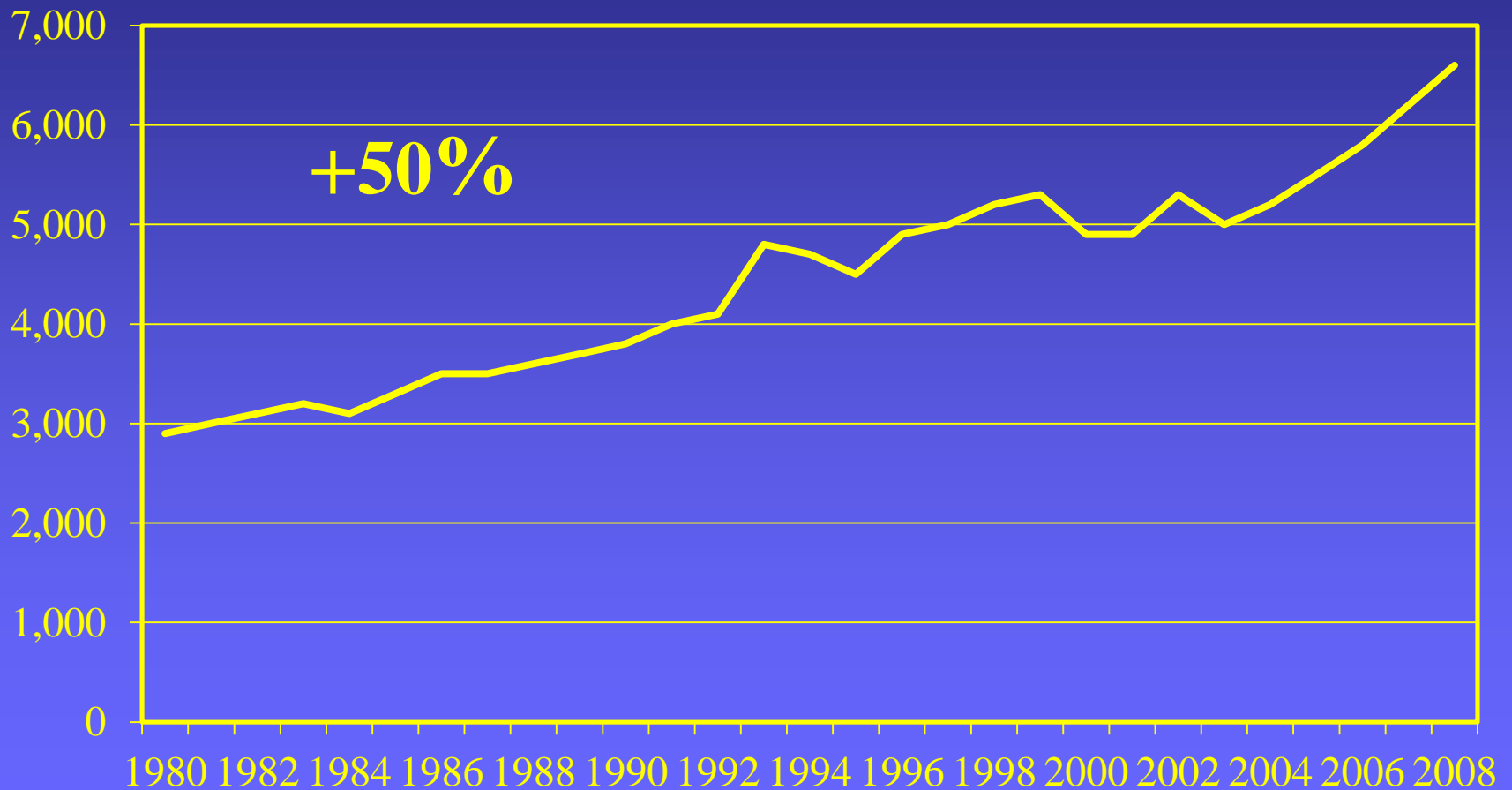


# **NEVADA'S BIG GAME POPULATION TRENDS**

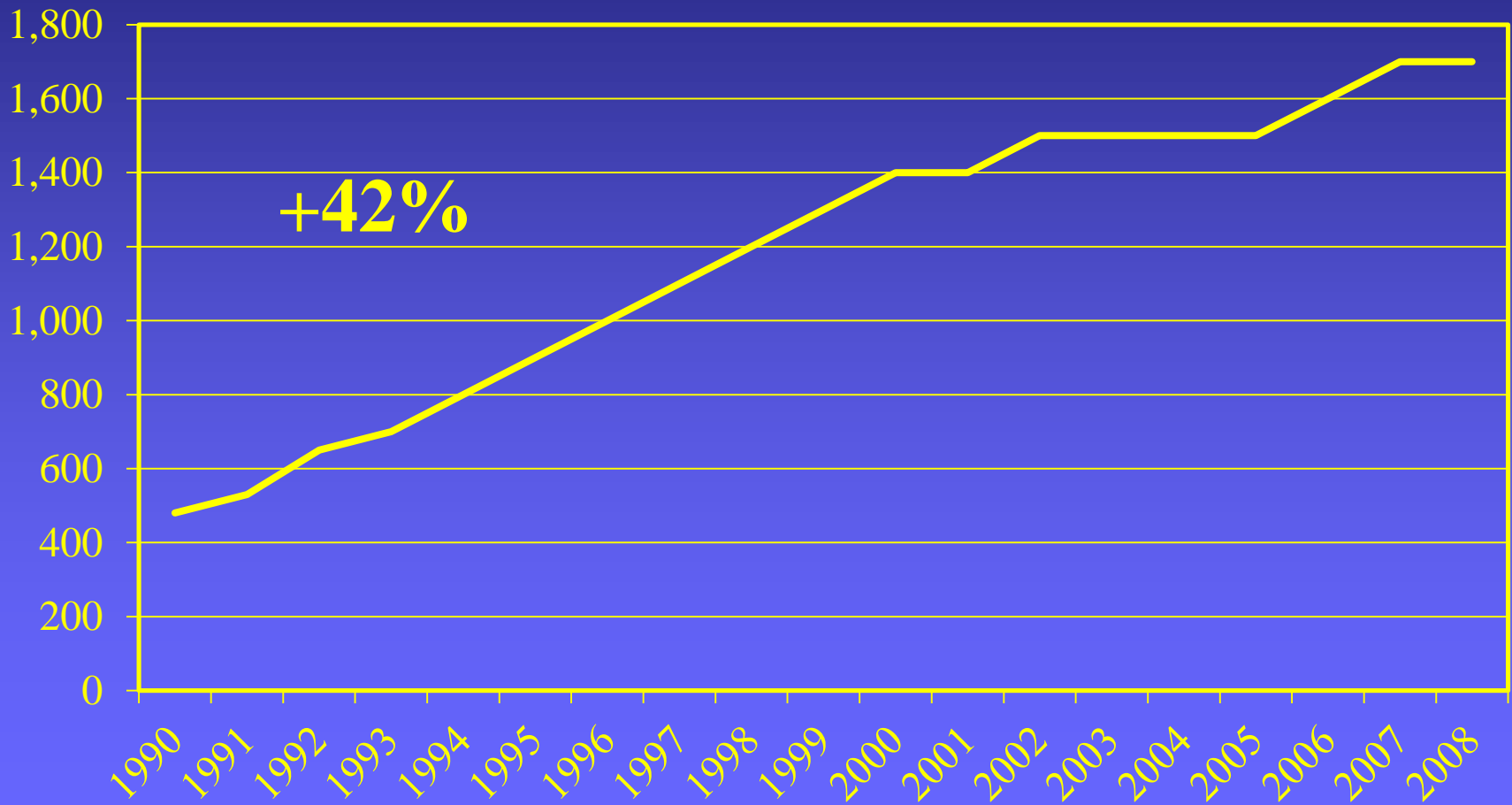
# ANTELOPE POPULATION TRENDS



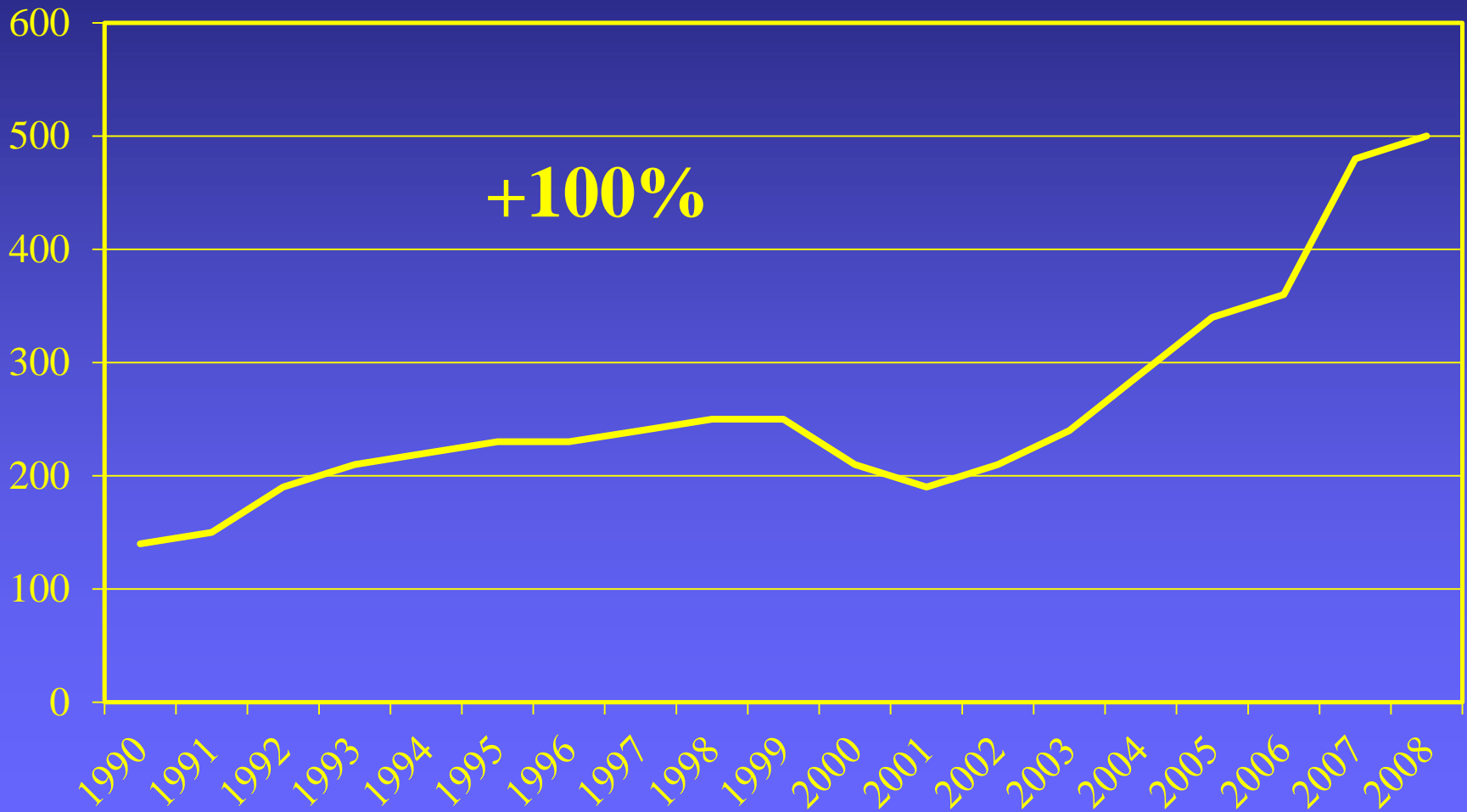
# DESERT BIGHORN SHEEP POPULATION TRENDS



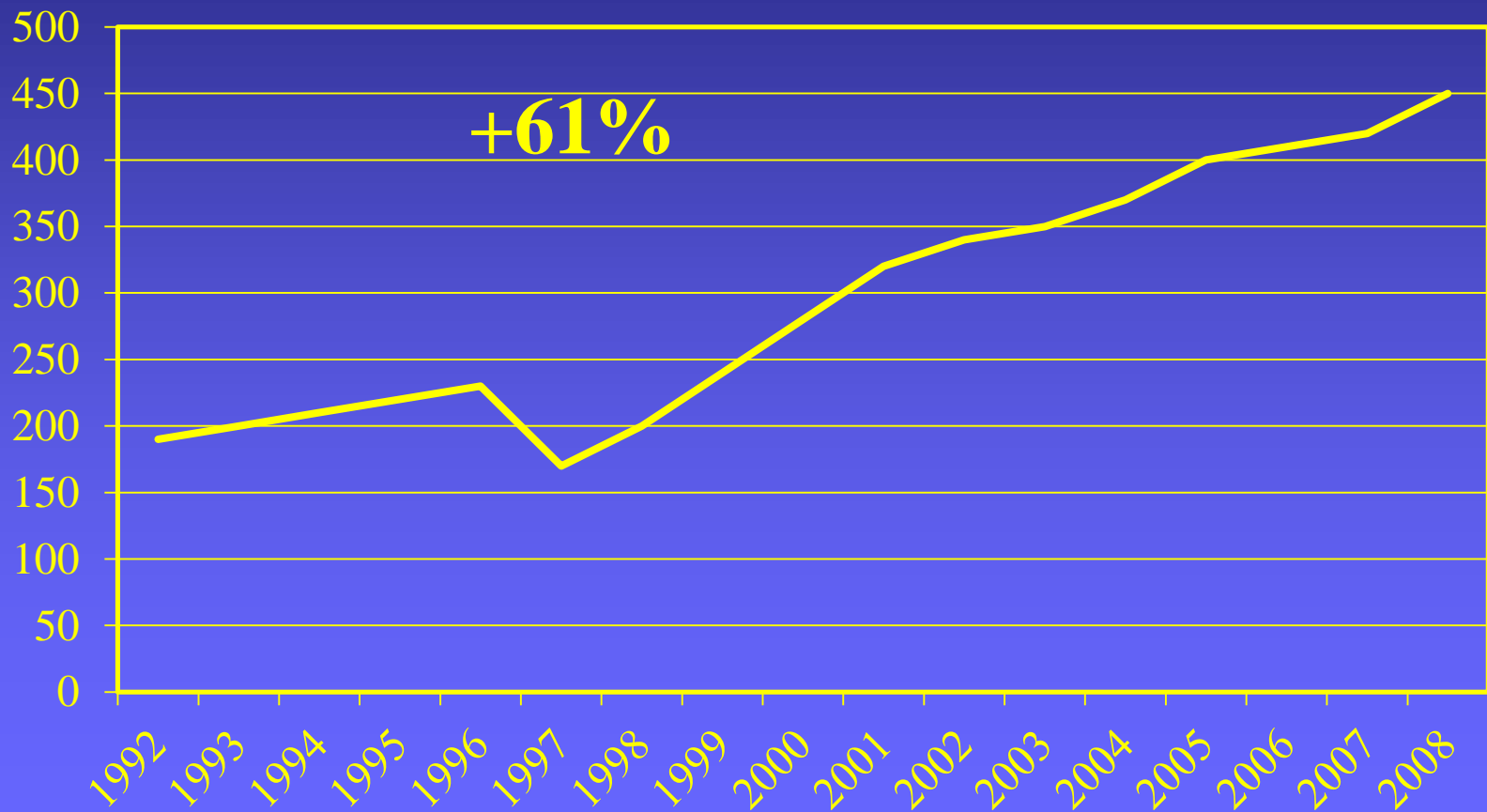
# CALIFORNIA BIGHORN SHEEP POPULATION TRENDS



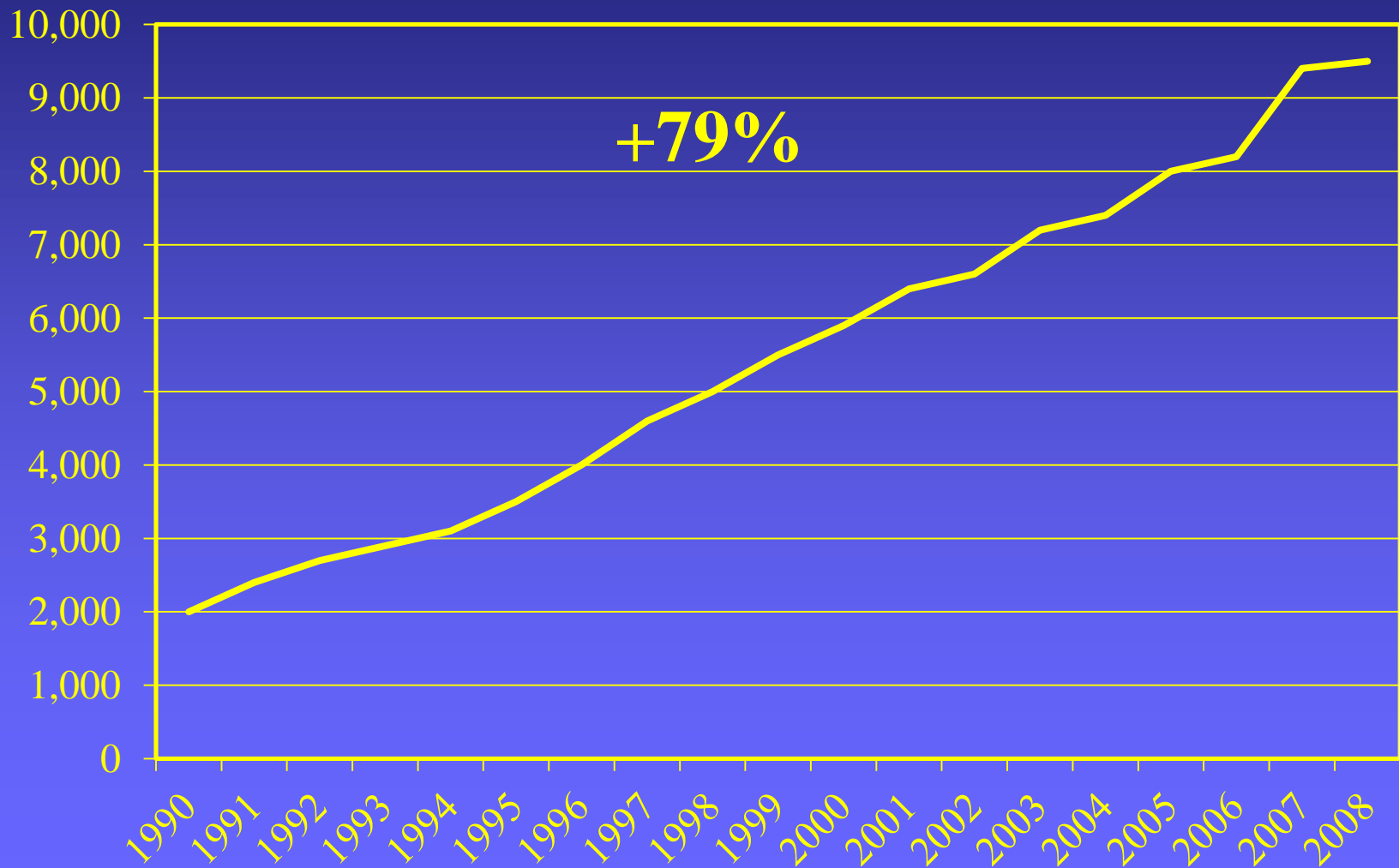
# ROCKY MTN BIGHORN SHEEP POPULATION TRENDS



# MOUNTAIN GOAT POPULATION TRENDS



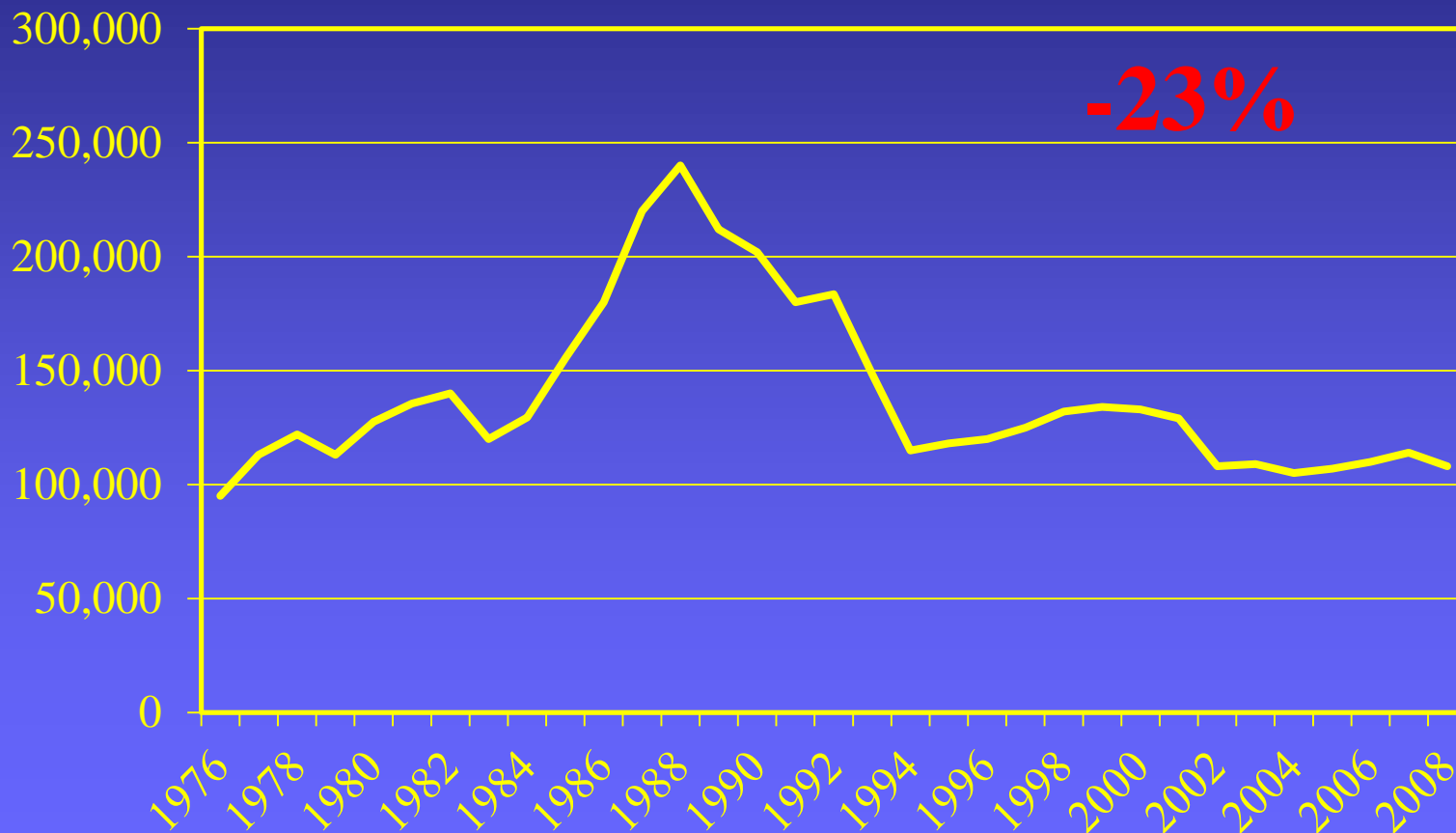
# ELK POPULATION TRENDS



# WHY?

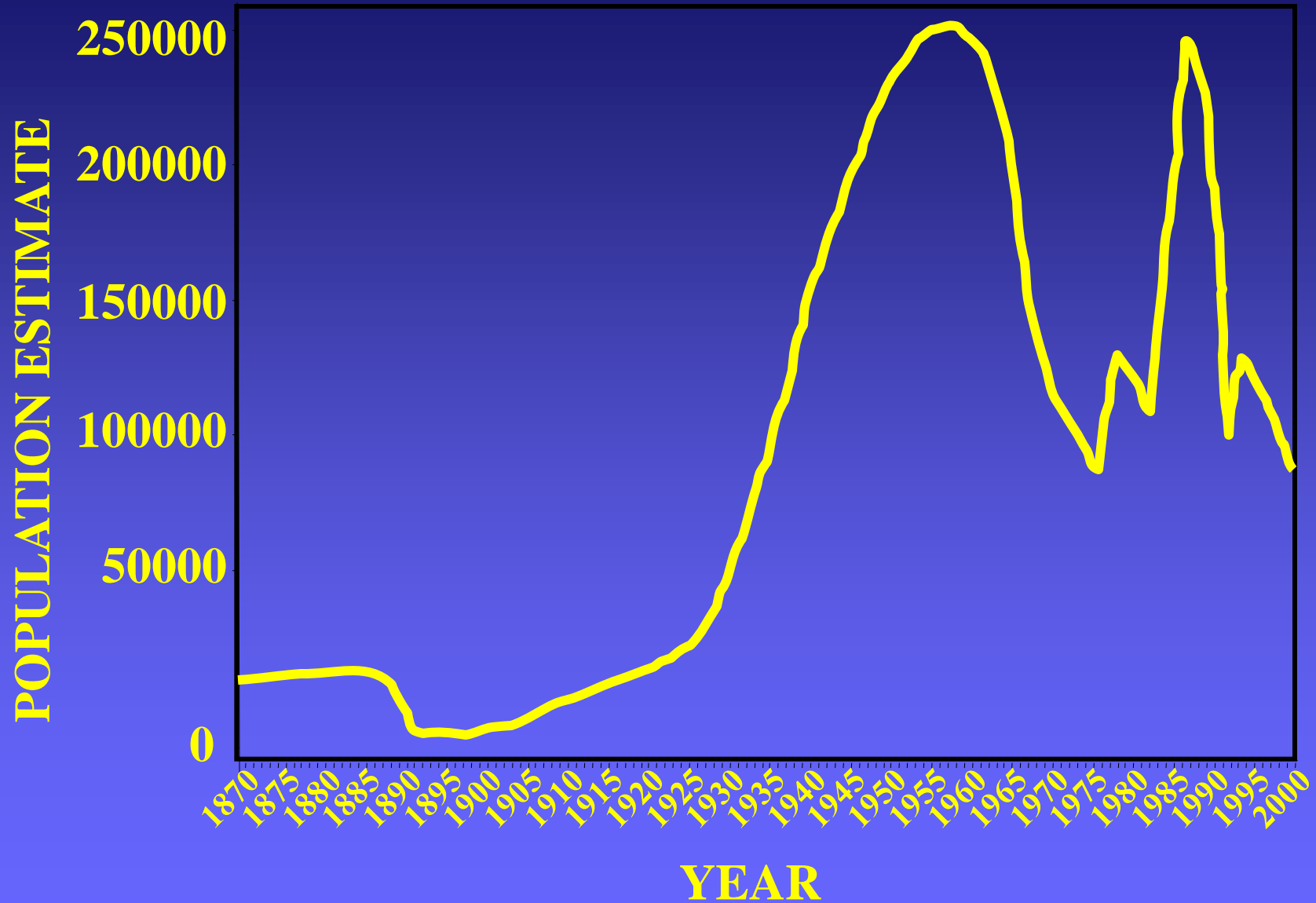
- **HABITAT TYPE CHANGES**
- **AGGRESSIVE TRAP AND TRANSPLANT PROGRAM**
- **AGGRESSIVE WATER DEVELOPMENT PROGRAM**

# MULE DEER POPULATION TRENDS

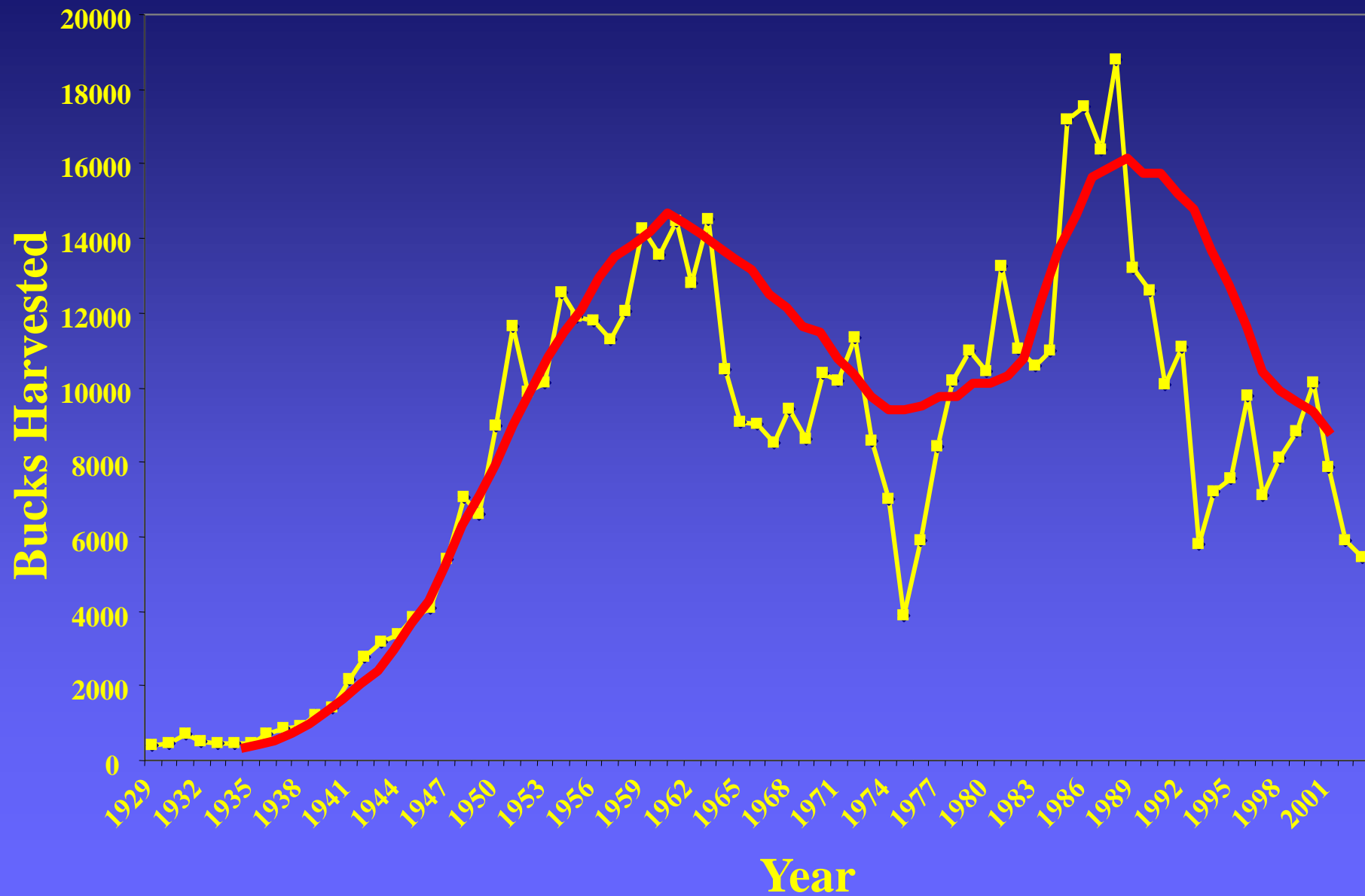


# MULE DEER POPULATION DYNAMICS OF NEVADA

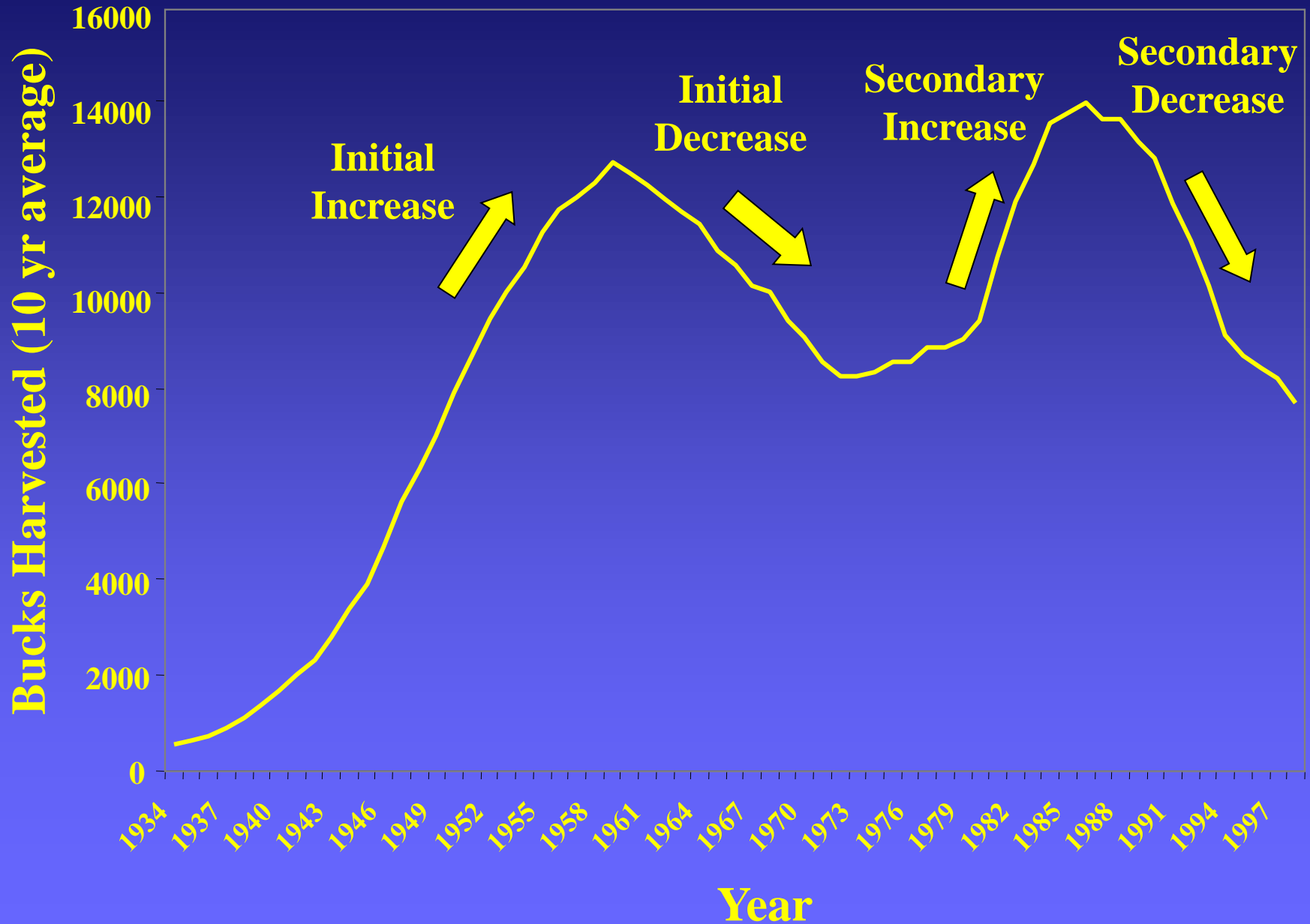
## 1870 - 2003



# Buck Harvest (1929 - 2003)



## Buck Harvest 1934 - 1998 (10 yr. average)



**A FEW THINGS WE NEED TO ESTABLISH**

**MULE DEER = DISTURBANCE SPECIES**



**A FEW THINGS WE NEED TO ESTABLISH**

**MULE DEER = DISTURBANCE SPECIES**

**HISTORIC DISTURBANCE IN NEVADA**













## 19th Century Nevada Mining Camps (stamp mills, furnaces, and smelters)

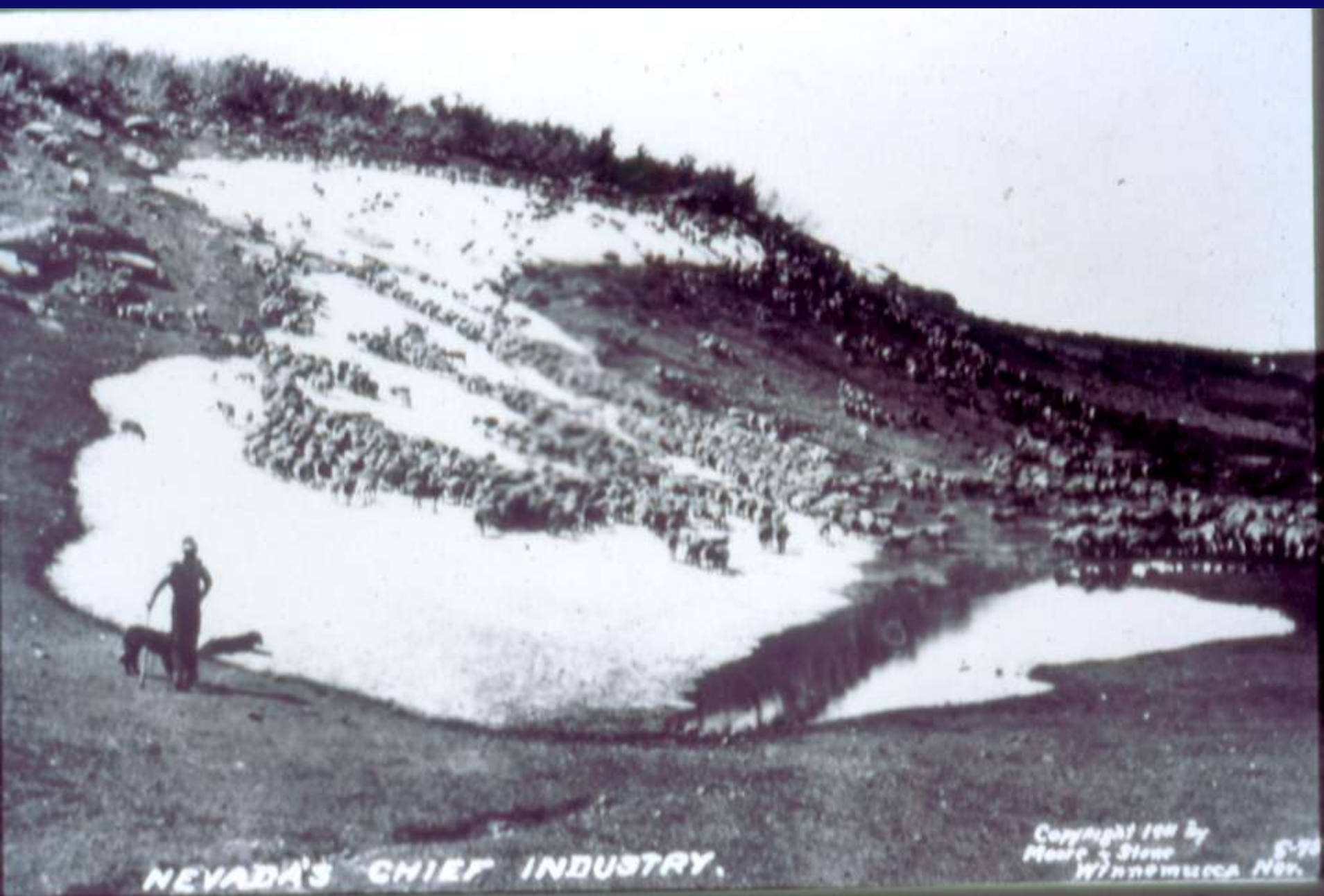




# **WOOD CONSUMPTION PRIOR TO 1900**

**3.5 Billion Board Feet of  
Lumber and 23 Million  
Cords of Wood**

**Enough Wood to Construct a Wall  
Around the Entire State of Nevada 25  
Feet High and 12 Feet Wide**

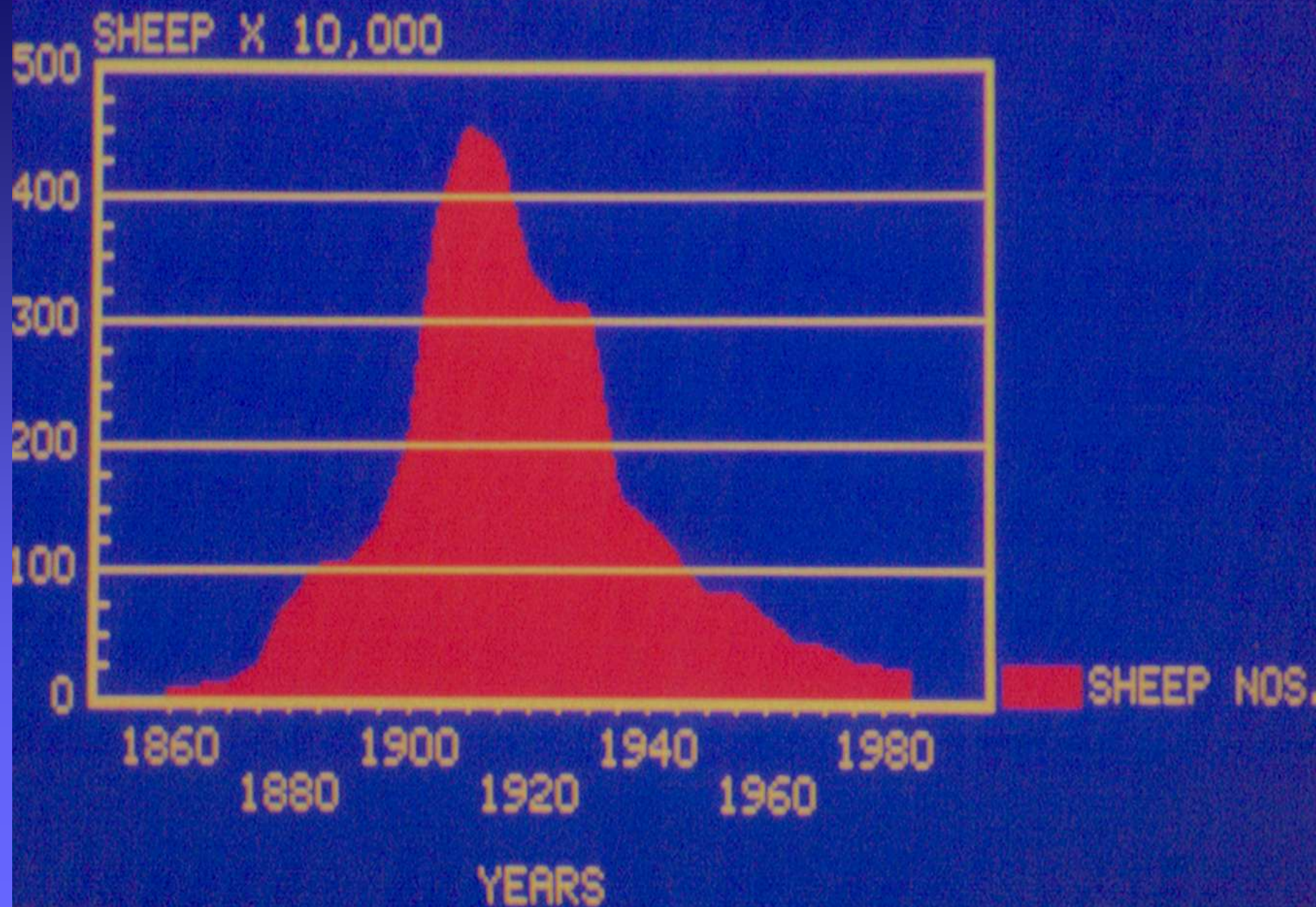


**NEVADA'S CHIEF INDUSTRY.**

Copyright 1911 by  
Moore & Stone  
Winnemucca, Nev. 5-70



# NEVADA SHEEP POPULATIONS 1860-1980

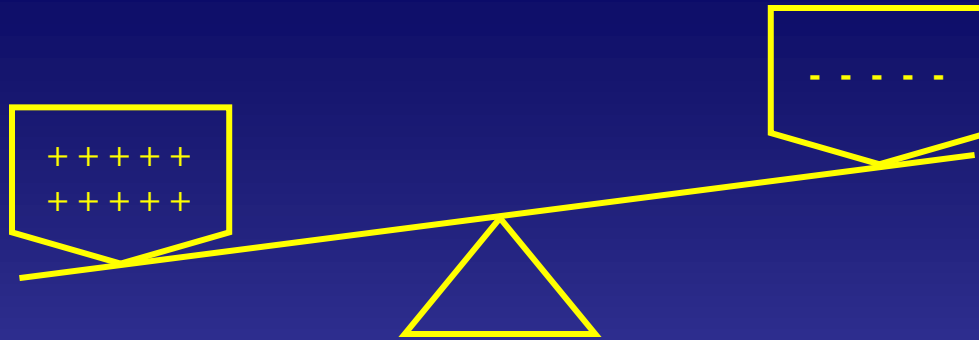


**A FEW THINGS WE NEED TO ESTABLISH**

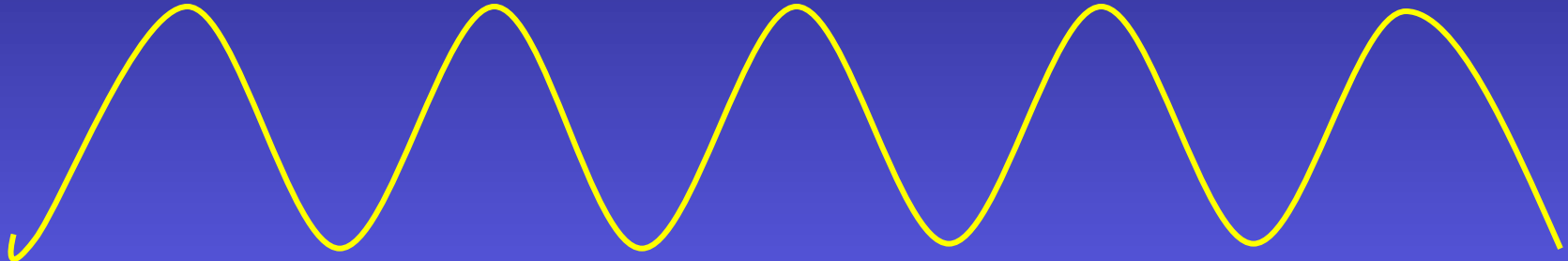
**MULE DEER = DISTURBANCE SPECIES**

**HISTORIC DISTURBANCE IN NEVADA**

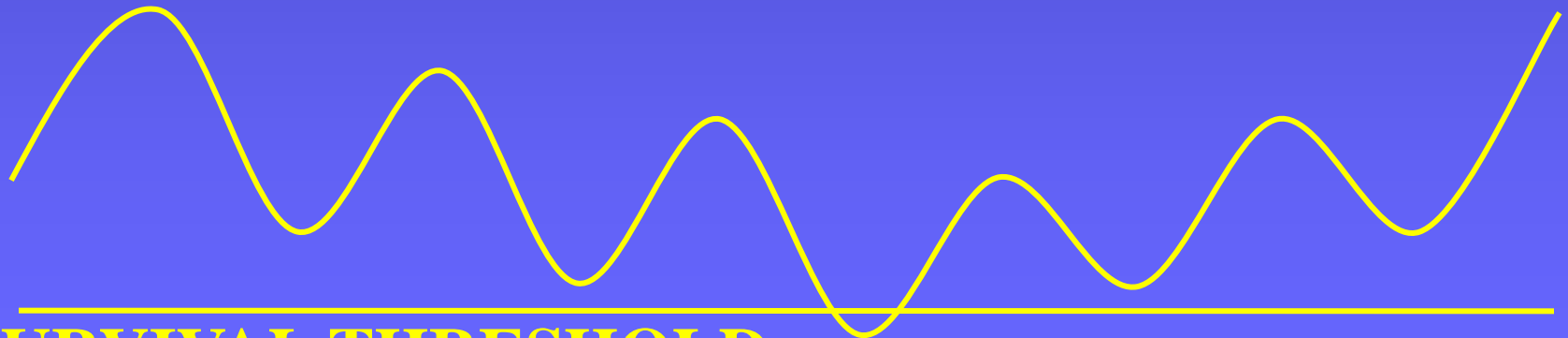
**MULE DEER = RUMINANTS**



**FALL**



**WINTER**



**SURVIVAL THRESHOLD**

# DECADENT BROWSE



# PJ ENCROACHMENT





# COMPETITION FOR BROWSE





# WILDFIRE

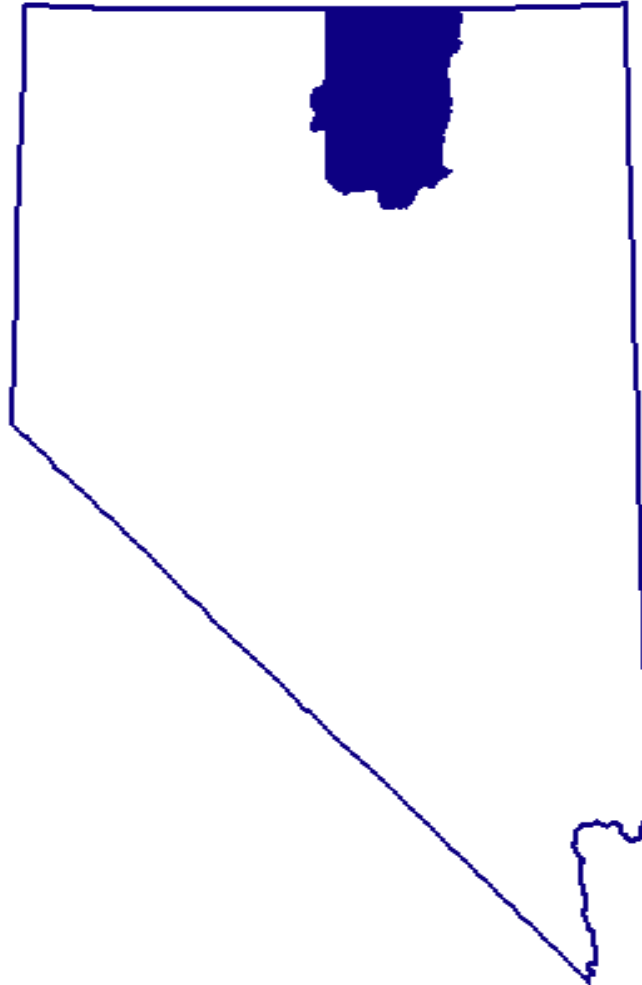








# Area 6 as an Example



# Area 6 as an Example

➤ Since 1999 over 1.3 million acres burned

➤ Crucial winter range reduced from:  
270,000 acres in 1961  
142,000 acres in 1996  
30,000 acres in 2008

➤ Area 6 deer herd estimated at 30-35,000  
at its peak in the 1960s to <6000 today

# CHANGES IN PROPORTIONAL ABUNDANCE OF SPECIES

# SELECTIVE HERBIVORY









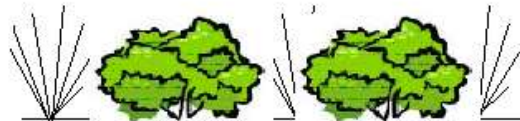




GRASS DOMINATED  
LOW NUMBERS OF  
BROWSE SPECIES



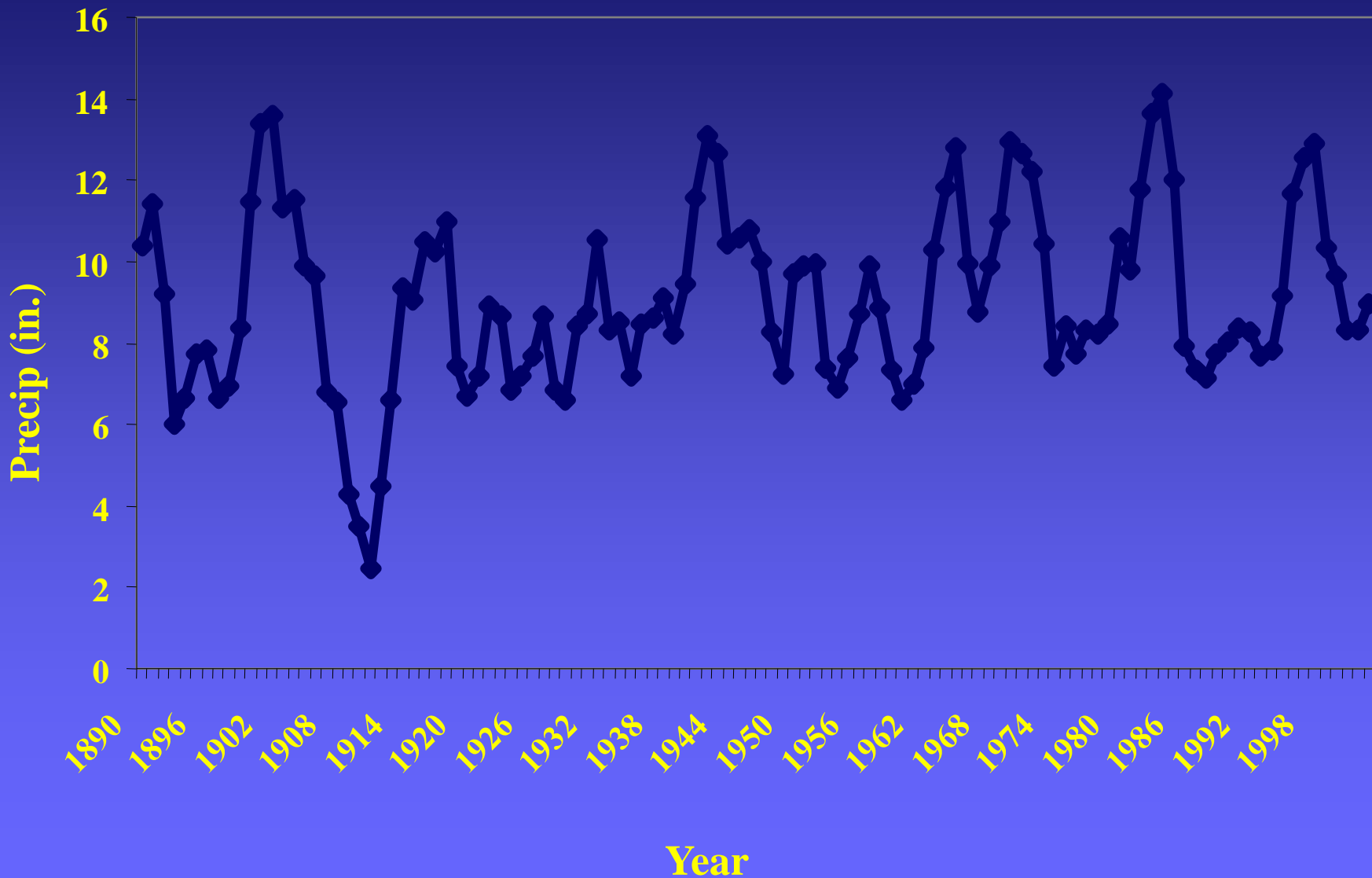
IDEAL PROPORTION  
OF BROWSE,  
GRASSES, AND FORBS  
OF HIGH QUALITY



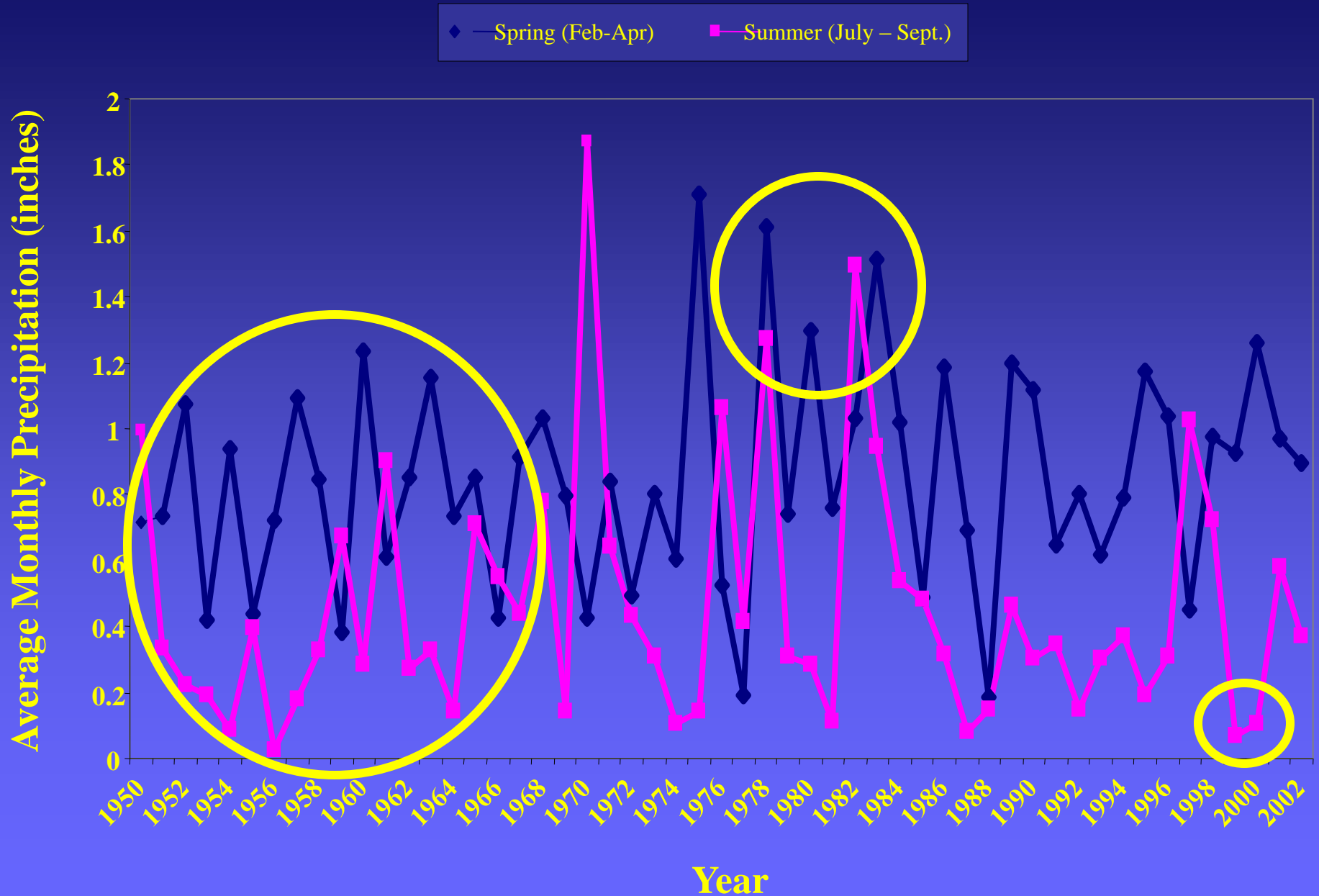
SHRUB DOMINATED  
LOW FORAGE  
QUALITY, LOW  
GRASSES & FORBS



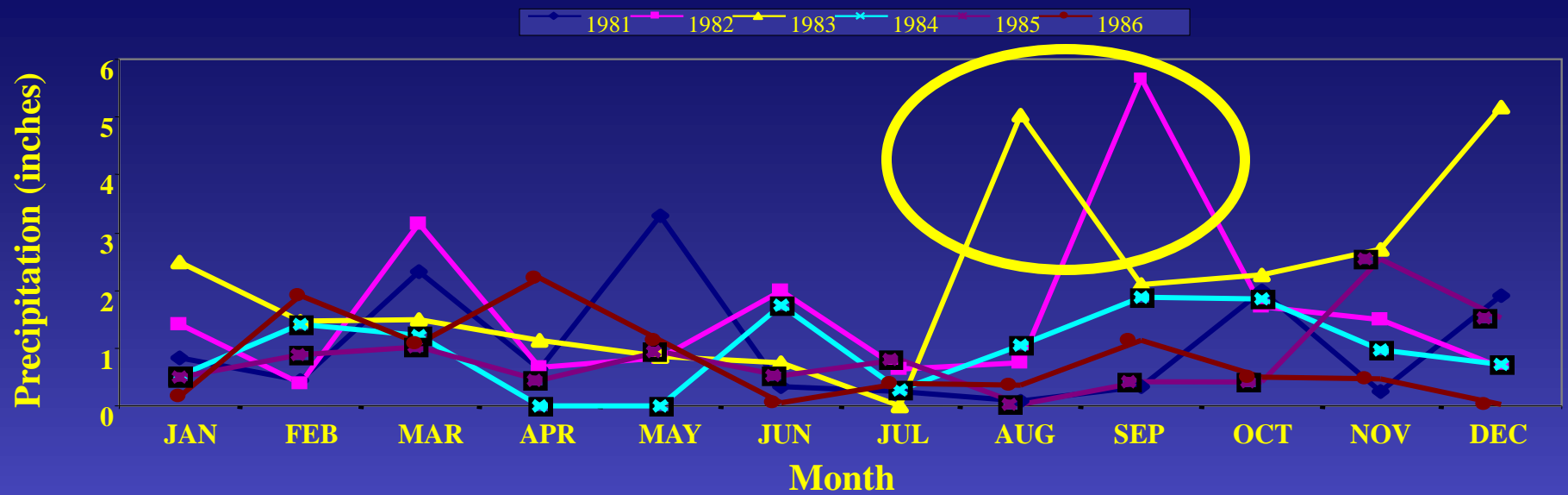
## Annual Precip. 1890 - 2003 (3 yr. ave.)



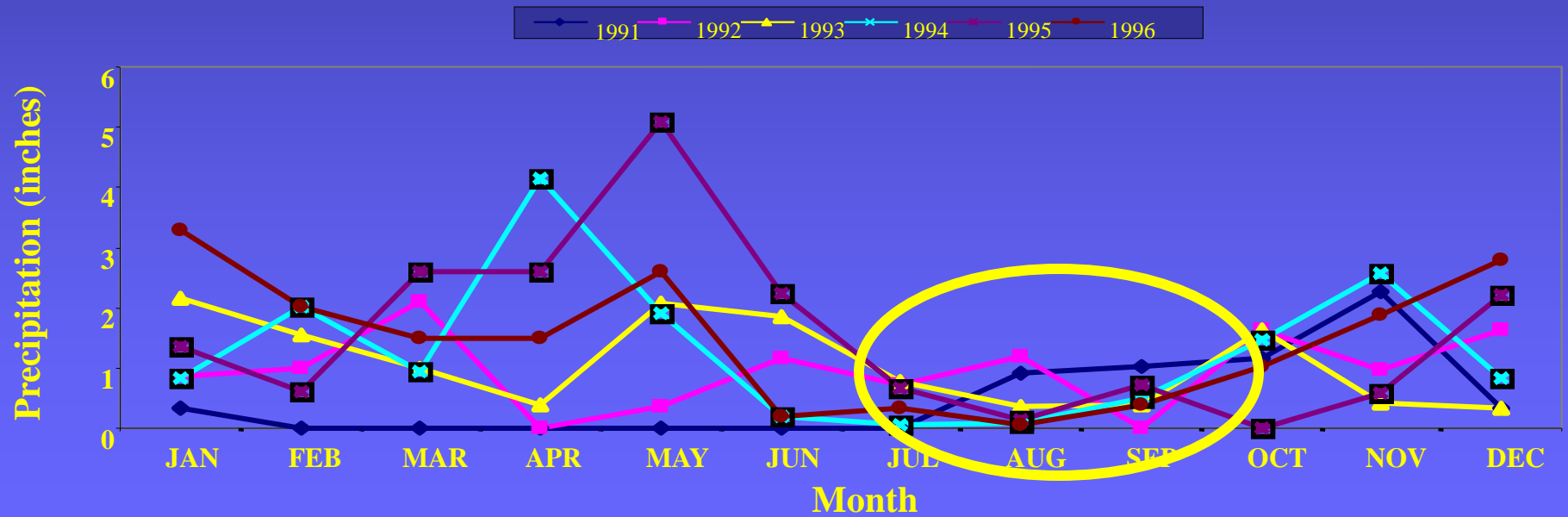
# Spring and Summer Precipitation at Elko 1950 - 2002



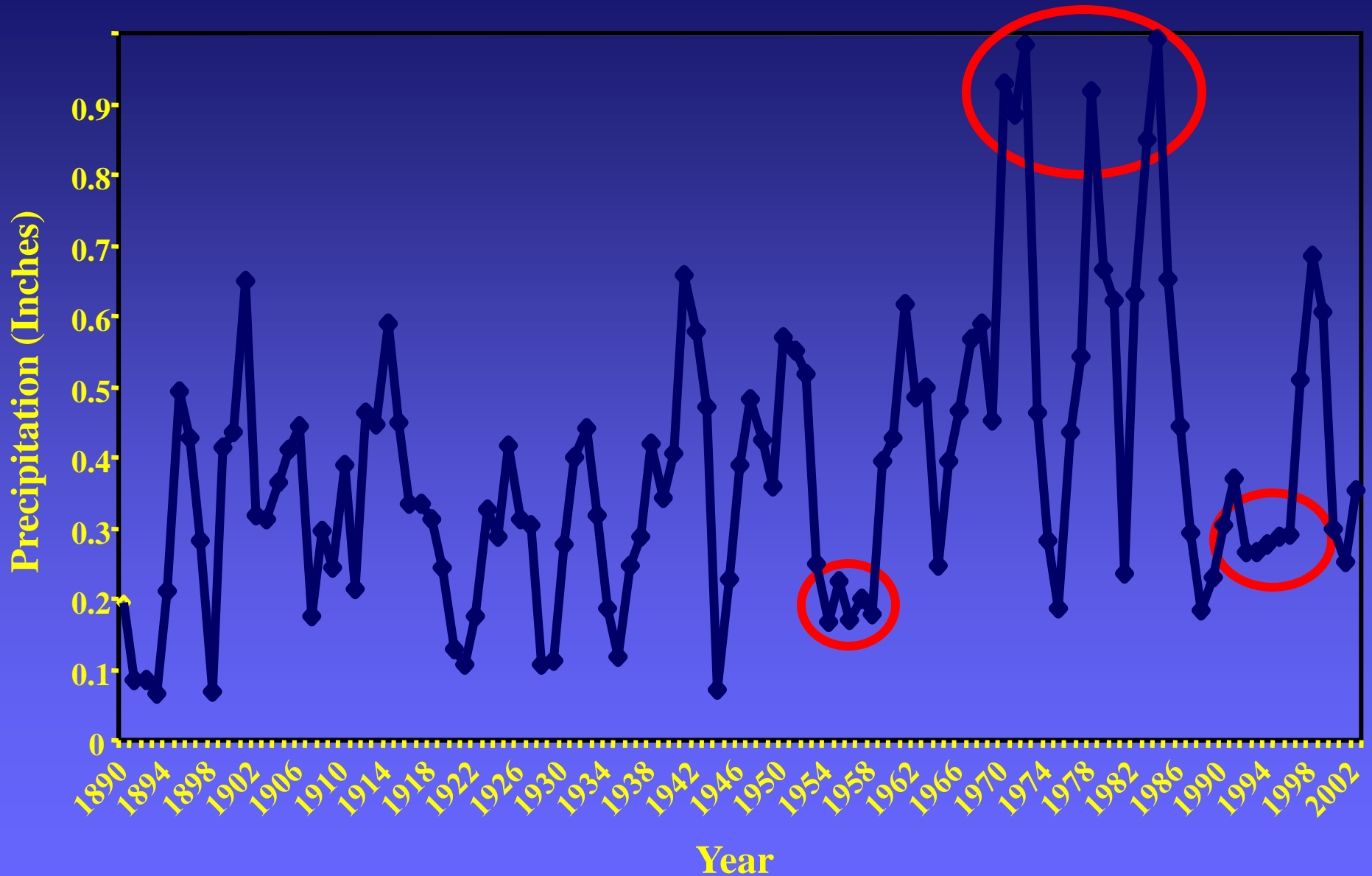
# Montly Precipitation at Jigg's 1981 - 1986



# Montly Precipitation at Jigg's 1991 - 1996



# Average Summer Precipitation for Elko for Over 100+ Years (3 yr.sliding ave. for July, Aug., & Sept.)



**More Summer Rain...**  
**So What??**

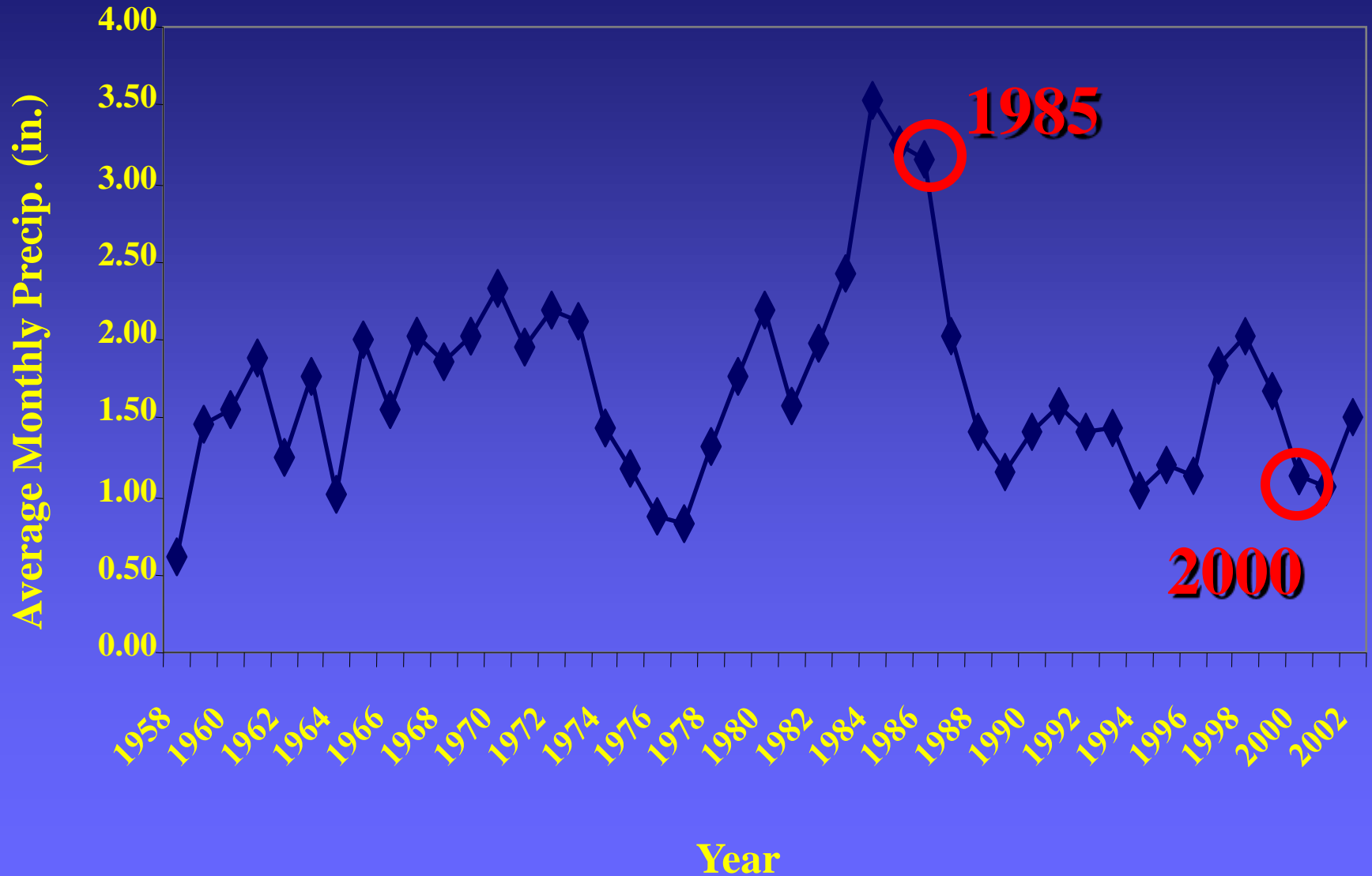
# RUBY-BUTTE DEER STUDY

## RUMEN % COMPOSITION--ALL SEASONS

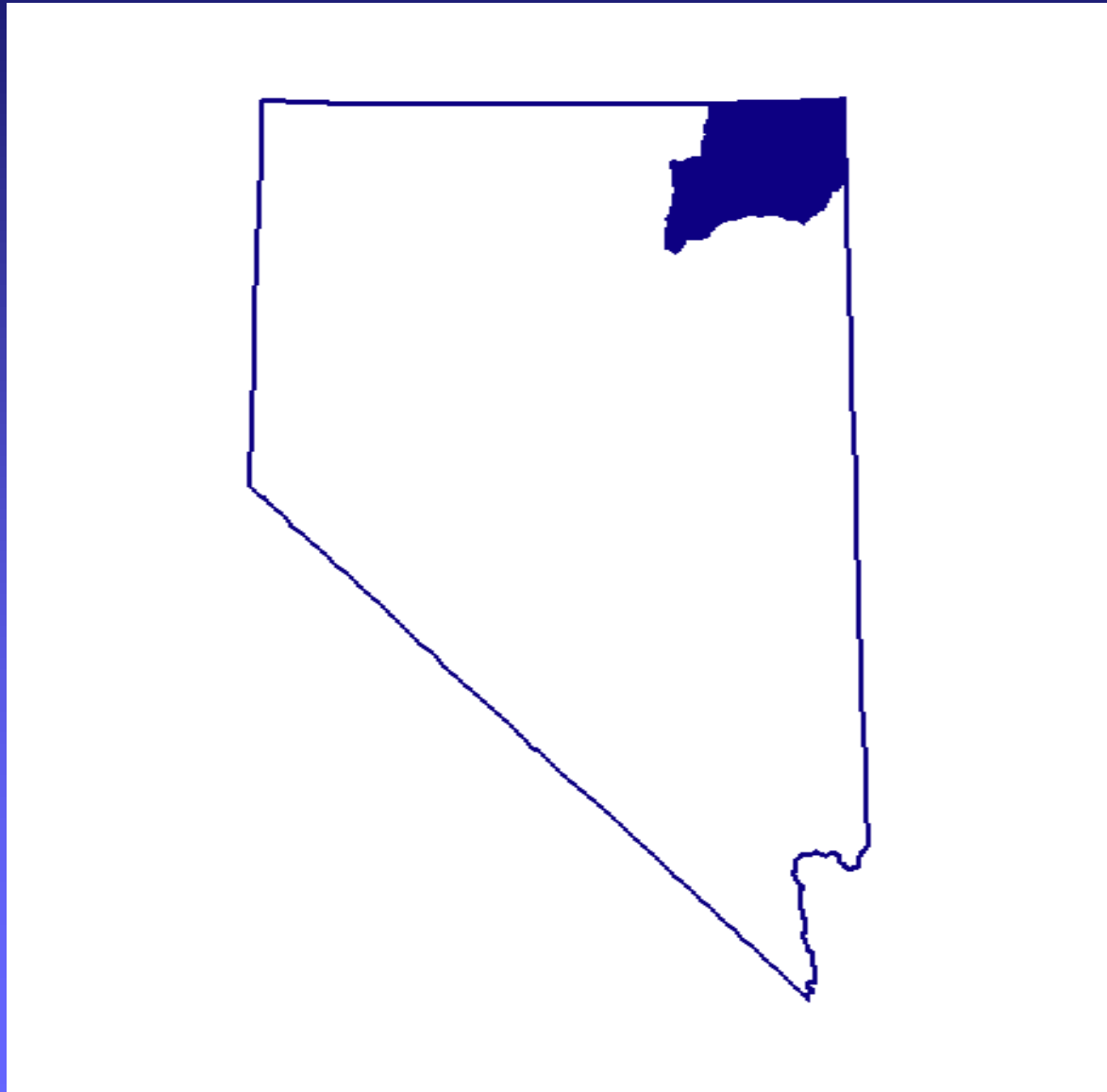
PERCENTAGE

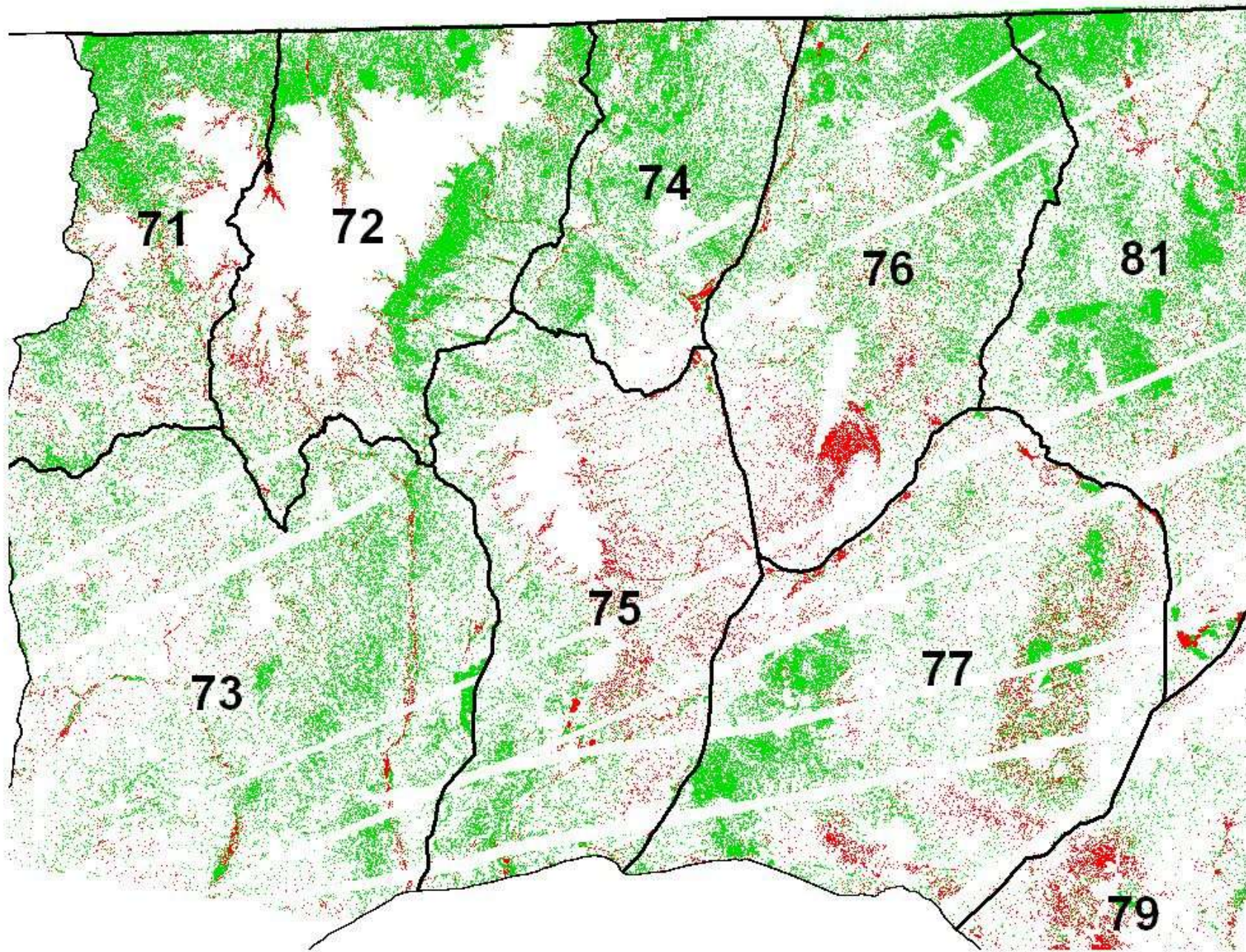


# Average Monthly Precip. 1958 - 2002 (3 yr. average), Gibbs Ranch, NV

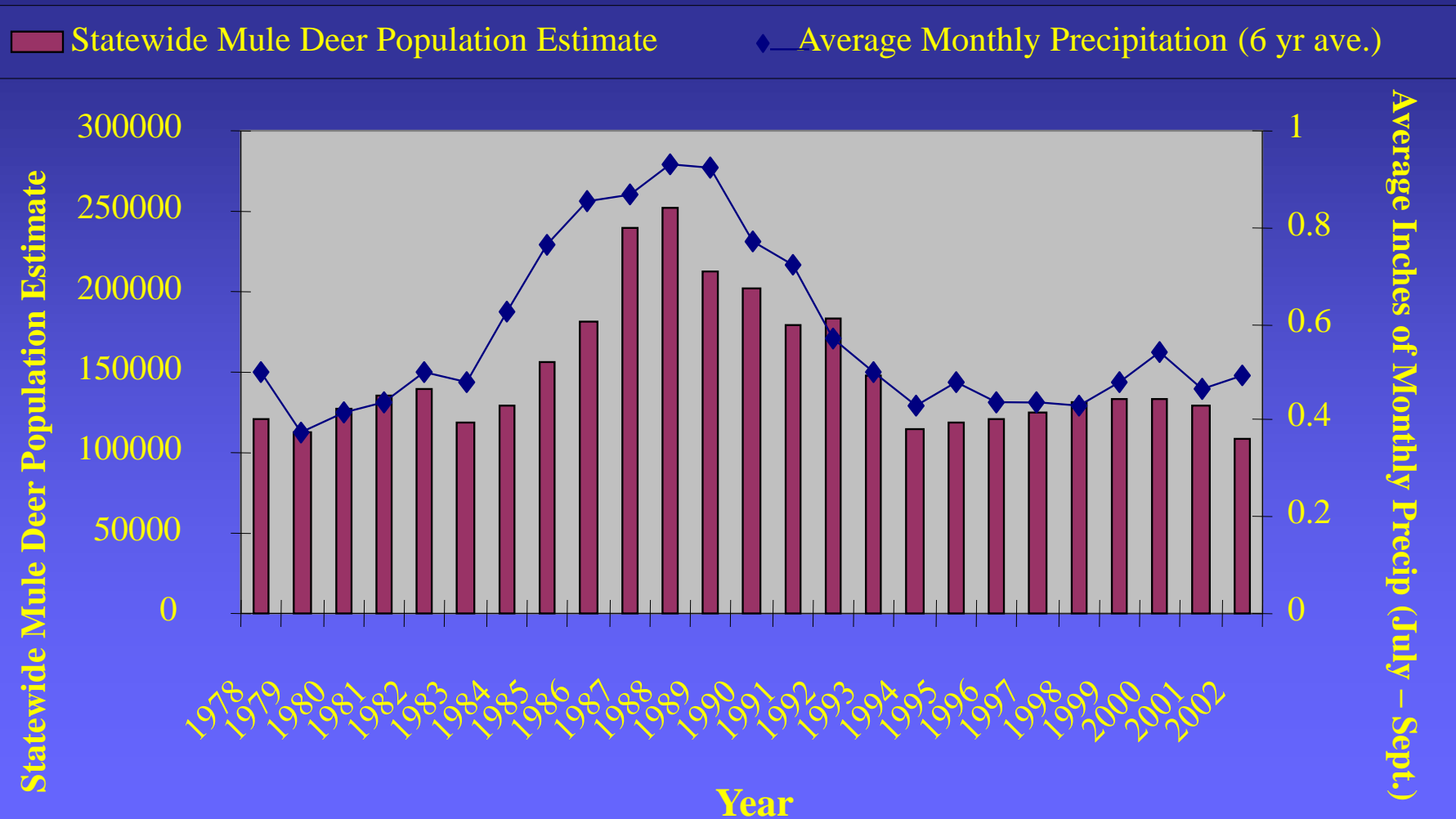


# AREA 7 – PROJECT AREA



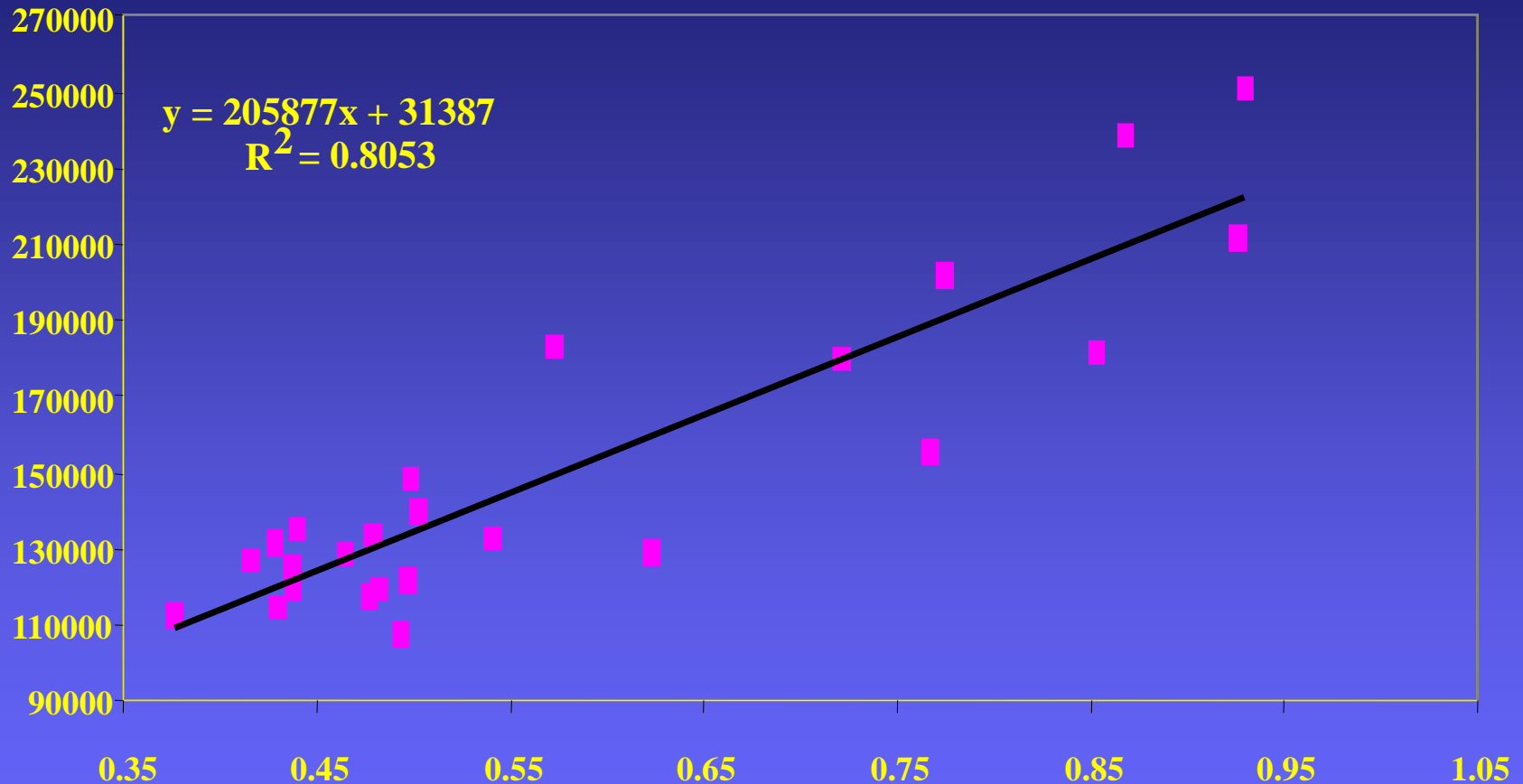


# Statewide Mule Deer Population Estimate as it Relates to Monthly Precipitation Received at the Gibbs Ranch July - September 1978 - 2002 (6 yr. Ave. 2 yr. lag)



**Statewide Mule Deer Population Estimate Plotted as a Function of  
Average Monthly Precipitation Received at Gibbs Ranch July -  
September 1978 - 2002 (6 yr. Ave., 2 yr. lag)**

**Statewide Mule Deer Population Estimate**



**Average Inches of Monthly Precipitation  
July - September (6 yr. sliding average, 2 yr. lag)**

# CONCLUSIONS

## ➤ Initial Increase

➤ Caused Primarily by Initial Disturbance

➤ Possibly Facilitated by a Favorable Climate

➤ Possibly Facilitated by Predator Control

# CONCLUSIONS

## ➤ Initial Decrease

- Caused Primarily by Extreme Drought
- Exacerbated by Type Conversion of Millions of Acres of Winter Range And Transitional Range

# CONCLUSIONS

## ➤ **Secondary Increase**

- **Caused Initially by Excellent Habitat**
- **Greatly Facilitated by Favorable Precip.**
- **Possibly Assisted by Predator Control**

# CONCLUSIONS

## ➤ **Secondary Decrease**

- **Initiated by Drought**

- **Exacerbated by Severe Winter (92-93)**

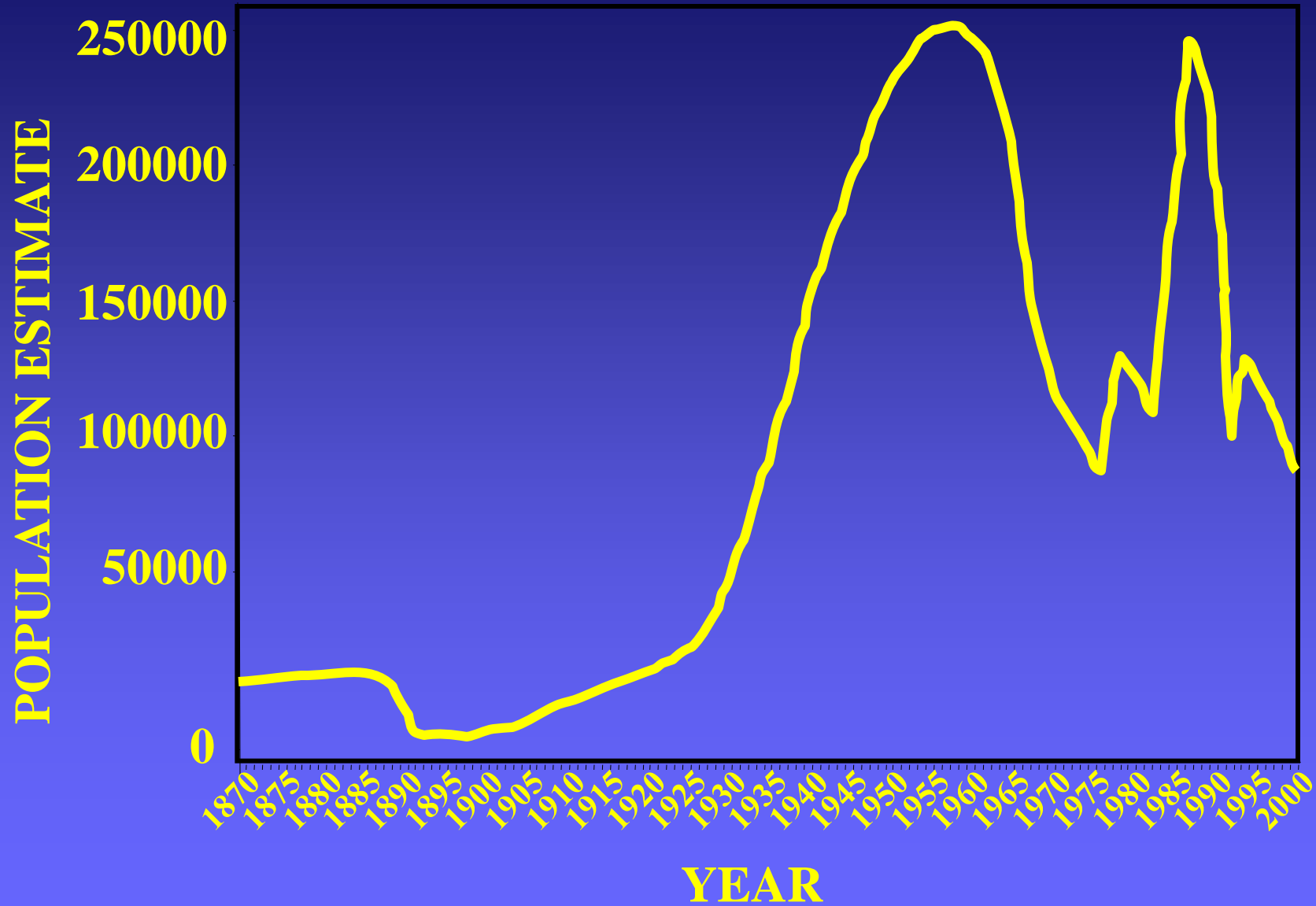
- **Further Exacerbated by Continued Drought and Wildfire**

# **SOME BROAD CONCLUSIONS**

- **All-time population peaks are not realistic goals as population objectives.**

# MULE DEER POPULATION DYNAMICS OF NEVADA

## 1870 - 2003



# **SOME BROAD CONCLUSIONS**

- **All-time population peaks are not realistic goals as population objectives.**
- **Although initial mule deer irruptions occurred throughout the West, they were not synchronized. However, more recent population trends have been.**
- **Although it does not appear that enough predators can be removed to mitigate drought effects, predator control may allow a population to respond more quickly to favorable habitat conditions.**

➤ **Even with ultra conservative harvest Strategies in place in the 1990s, more bucks were harvested in 1996 & 2000 than with unlimited quotas from 1965 to 1969, the culmination of the 1080 years.**

➤ **Many of the factors affecting mule deer are politically or logistically impossible to change. However, protection of existing habitat and increasing quantity and quality of habitat is critical to reverse the trend.**

# **KEYS TO INCREASING MULE DEER HABITAT QUANTITY AND QUALITY**

- DISTURBANCE, DISTURBANCE,  
DISTURBANCE**
- OBTAIN AN INTACT  
UNDERSTORY OF FORBS AND  
GRASSES**
- MAINTAIN PROPORTIONAL  
ABUNDANCE OF PLANTS VIA  
INTERMEDIATE LEVELS OF  
DISTURBANCE**

